

been recognised for at least twenty-four years, and in 1888 the then President of the Local Government Board (Mr. Ritchie) had said that the enforcement of the Act was committed to an elective tribunal which must use this discretion. He asked Mr. Chaplin what he proposed to do. Did he intend to prosecute those people whose children were not vaccinated, and who had not obtained and refused to obtain certificates under the conscientious objector's clause? Mr. Channing also complained that the provision of the Act excluding any form of compulsory vaccination of children in hospitals and workhouses under the age prescribed by the Act had been violated; that the public vaccinator in many cases had ignored the provision requiring twenty-four hours' notice to be given; that certificates under the conscientious objector's clause had been held to be invalid because not sent to the vaccination officer within seven days; and that parents had been compelled to pay for producing the birth certificates of their children.

Mr. HAZELL (Leicester) said that his constituents were practically unanimous, and were determined that the views of the Local Government Board should not prevail in Leicester.

Sir WALTER FOSTER said that in his opinion the issue of the circular of the President of the Local Government Board was, to say the least, unfortunate. It impressed on vaccination officers that they were bound to prosecute defaulters under the Vaccination Acts, and to do so even against the opinion of the guardians. Vaccination officers were appointed by the guardians, and from them they received their salaries. Yet they were to institute prosecutions whether their employers liked it or not, and were to rely on the Local Government Board to protect them. The result must be that in some cases the position of these officers would become intolerable. The offended guardians would be always near them, but the protecting central authority was far off, and these officers would be unable to serve the two masters. If the dispute went on the danger would be that, when the vaccination officer resigned, the guardians would not appoint a successor, and vaccination would fall into neglect. He should like the right hon. gentleman to tell them what he meant to do with those Boards of Guardians who would not appoint. (Mr. Chaplin: They nearly all have.) Would he have a definite line of policy when the difficulty arose? It would have been better, as he had proposed in Committee, to have paid every medical man for every case properly vaccinated, and he believed it would have cost less in the end. He congratulated the right hon. gentleman on the statement he had made as to the success of the Act. He thought that statement must be reassuring to the country and to the House—that the policy carried out last year was a right policy. He had received information from various parts of the country from medical men, and he found that there had been a larger amount of vaccination during the last few months than in any similar period for many years. He thought, however, the result would have been infinitely greater if it had not been for the stupid policy of the press and the magistracy. He thought that the magistracy were to blame because they had not carried out the law as it was intended to be carried out. Unfortunately, the press took the matter up, and there was a great deal of wild writing tending to encourage the magistrates not to grant certificates. If the certificates had been granted readily there would have been less agitation and more vaccination. He complained of the tendency in some districts to charge too high fees for certificates, and in addition to exact certificates of birth. This would raise the cost to 2s. or 3s. in each case, which was a serious matter to a man receiving only 20s. or 25s. a week, especially when he had to pay for two or three children in arrears as often happened last year. In every case it was the duty of the Local Government Board to do what they could to prevent prosecutions being undertaken when the plea of insanitary surroundings was raised. He hoped that throughout his administration of the Act the right hon. gentleman opposite would do all he could to lessen the causes of irritation, such as prosecutions for technical omissions in complying with the Act. The great thing was to get the children vaccinated, and to advance the consumption of the calf lymph which the Act contemplated should be generally used.

After some remarks from Mr. LABOUCHERE,

Mr. CHAPLIN said that he could only repeat that any instructions he might issue would, after the decision of the Court, be superfluous and ineffectual. He had done nothing to interfere with the relation between guardians and vaccination officers. He would perform the duty which Parliament has placed upon him without fear or favour, but avoiding so far as possible anything that would cause irritation. Reports by the Local Government Board's medical inspectors as to the increase or decrease of vaccination since May 4th relating to different unions—West Bromwich, Maidstone, Lambeth, Fulham, St. Olave's (Southwark), Holborn, Whitechapel, St. Saviour's (Southwark), Haddington, Stoke-on-Trent, and Glamorganshire—showed that in the first quarter of 1898 the number of vaccinations in these unions was 3,744; in the first quarter of 1899 there were 6,614, an increase of 3,332, or 77 per cent. He had every reason to believe this increase might be taken as a fair indication of what was going on in other parts of the country. He conceived it to be his duty to do everything in his power to promote an increase of vaccination throughout the country.

Sir WILLIAM HARCOURT thought that the statement was most satisfactory, and proved that the amended Bill was much better than that originally produced.

Mr. BAYLEY (Derbyshire, Chesterfield) asked whether the Government would continue the custom of the last thirty years, or would put in force what was said to be the law.

Mr. CHAPLIN said that the custom had been ruled illegal by a Court, and he had no power to interfere.

Dr. CLARK (Caithness) asked whom a vaccination officer was to obey if a Board of Guardians was in favour of prosecutions but the Local Government Board was not? At present a vaccination officer had to give security that he would obey the directions of the Local Government Board as well as of the Board of Guardians which employed him.

The Committee divided, when there voted for the reduction 59, against 190, majority 131.

In response to the appeal by the Duke of Devonshire, Mr. H. L. Florence has forwarded a donation of £105 in aid of the West London Hospital.

EDINBURGH HARVEIAN FESTIVAL.

THE 117th Harveian Festival was held in the Hall of the Royal College of Physicians, Edinburgh, on Friday, June 2nd, when the President, Professor Alexander Crum Brown, gave the Harveian Oration on Dr. John Mayow.

"John Mayow descended from a genteel family of his name, living at Bree, in Cornwall, was born in the parish of St. Dunstan's-in-the-West, in Fleet Street, London, admitted a scholar of Wadham College on September 27th, 1661, aged 16 years, chosen Probationary Fellow of All Souls College soon after, upon the recommendation of Hen. Coventry, Esq., one of the Secretaries of State, where, tho' he had a legist's place, and took the degrees of Civil Law, yet he studied physic, and became noted for his practice therein, especially in the summer time, in the city of Bath, but better known by these books, which show the pregnancy of his parts: *De Respiratione*, Tract 1, 1668; *De Rachitide*, Tr. 1, 1669, Oxon., of both which tracts is a large account given in the *Phil. Tr.* No. 41, p. 803, an. 1668: *De Sale nitro et spiritu nitro-aërio*, *De Respiratione fœtus in utero et ovo*, *De motu musculari et spiritibus animalibus*, all Ox. 1674, a large oct. Of these three last (which were printed again with the two first) is a large account given in the *Phil. Tr.*, No. 105, p. 101, etc., and all five were printed together at the Hague, 1681, oct., and again in *Biblioth. Anat. per Le Clerc et Manger*, Geneva, 1685. He paid his last debt to Nature in an apothecary's house, bearing the sign of the Anchor, in York Street, near Covent Garden, within the liberty of Westminster (having married a little before, not altogether to his content), in the month of September, sixteen hundred seventy and nine, and was buried in the Church of St. Paul, Covent Garden."

This short account from Wood's *Athenæ Oxonienses* (1772) is all, said Professor Crum Brown, I have been able to find of the personal history of Mayow, except that on the 30th of November, 1678, he was elected a Fellow of the Royal Society of London, having been proposed by Hooke. He was thus 23 years old when he published his tract on Respiration, and he died at the early age of 36.

A PRECURSOR OF LAVOISIER.

I have chosen Dr. John Mayow as the subject of this discourse, not so much because he was a contemporary of Harvey—he was 12 years old when Harvey died—or because he also lived in Oxford and was a physician, as on account of the five tracts which form his *Opera omnia*. Mayow's works were not much noticed in his own time, and speedily fell into total oblivion.

When oxygen was discovered, about 1774, and when Lavoisier soon after expelled the phantom phlogiston which for a long time had haunted chemistry, Mayow's book was discovered in old libraries, where it had remained untouched for a hundred years; and those who discovered it were astonished to see that the new chemistry which was rapidly conquering the scientific world was to be found in this old book. As far as I know, Dr. Thomas Beddoes was the first distinctly to recognise Mayow's claim. It is interesting to note that not only did Dr. Beddoes discover this Cornishman who had been dead and forgotten for more than a hundred years, but that he had the good fortune to discover a living Cornishman, a chemist of greater eminence than Mayow, for Humphry Davy was the superintendent of Dr. Beddoes's Medical Pneumatic Institution. Dr. Beddoes published his discovery of Mayow in a letter to Dr. Edmund Goodwyn, with an "Analysis of Mayow's Chemical Opinions." It is dated Oxford, February 12th, 1790, two years before his resignation of the Readership in Chemistry. Besides Beddoes, we have Dr. J. B. A. Scherer, M.D., Physician in Vienna, who in 1793 published "Beweis dass J. Mayow vor 100 Jahren den Grund zur antiphlogistischen Chemie gelegt hat." And also G. D. Yeats, M.B., of Hertford College, Oxford, Member of the Royal Medical Society of Edinburgh, and Physician in Bedford, who in 1798 published "Observations on the Claims of the Moderns to some Discoveries in Chemistry and Physiology."

Beddoes quotes from Blumenbach's *Institutiones Physiologicae*, 1787, the following remarkable passage:

"A great part of these memorable phenomena" (says he, speaking of respiration), "by which in recent times both the physical science of the factitious airs and the physiology of respiration have been so strikingly

enriched and illustrated, were already known more than a hundred years ago to the physician John Mayow, a man of most acute genius, whose tract, *De sal-nitro et spiritu nitro aerio* (for that was the name he gave to dephlogisticated air), published in Oxford in 1650 I have read and reread with great pleasure."

But these attempts to make Mayow and his work known to the scientific and medical world were not crowned with success, and without going further we can see one reason for this in the character of these attempts themselves. Dr. Yeats had not been able to find in Mayow an interesting experiment quoted by Dr. Beddoes, and wrote to him to that effect. Dr. Beddoes was very much distressed and alarmed.

Later, continued Dr. Crum Brown, the reference was found, all the fuss had been about nothing, and was of no use save to advertise Dr. Yeats. "If Dr. Beddoes is too rhetorical (it was his own criticism of himself), Dr. Yeats is rather prosy, and quite lacking in critical power, so that I do not think they can have induced many people to read Mayow's tracts."

CHARACTER OF MAYOW'S WORK.

Then, again, Mayow might have contributed in an important way to our knowledge or to an understanding of Nature, but he did not. All his work had to be independently discovered by others, and it is from them and not from Mayow that we have derived our knowledge. Some passages in Mayow's writings doubtless contain indications by no means obscure of truths not generally known or discovered by others more than a century later; but closely connected with these will be found foundationless assumptions and wild reasoning worthy of a mediæval alchemist. In much he anticipated Lavoisier. Much nonsense is inextricably mixed up with the description of his ingenious and well-contrived experiments and with his clear-sighted interpretation of them. Mayow's discoverers failed in their endeavour to place his name in the list of great scientific heroes.

HIS VIEWS ON RESPIRATION.

But for all that he was a very interesting man, and his five tracts are well worth reading, and before long we may see them in an English translation. The tract *De Respiratione* was his earliest and by far his best, and it had a particular interest to Harveians from the intimate relation of respiration and the circulation of the blood. The mechanism of respiration is described as it might be by a physiologist of to-day. He observed the double articulation of the rib to the vertebra. He held that both internal and external intercostal muscles were muscles of respiration. He gives a very neat and very apt illustration of the way in which the lungs are inflated. His account of the action of the diaphragm is exactly what we have all been taught; he even mentions that although on the whole in inspiration the wall of the abdomen is pushed out by the abdominal viscera pushed down by the diaphragm, there is a part of the abdominal wall drawn in because of the attachment of the diaphragm to the false ribs. He gives a vivid and clear description of the mechanism of hiccough. His remarks altogether on violent expiration are most interesting. Having explained the mechanism of respiration, he next turns to its use. "This," he says, "is indeed a most difficult affair, for there is not more accord as to its necessity than doubt as to its use." Dr. Crum Brown then compared Harvey's idea as to the use of respiration with Mayow's. Harvey considered the cooling of the blood as the reason why it was sent round by the lungs instead of straight from the right to the left side of the heart. Mayow, on the other hand, says "it may be affirmed that an ærial something (whatever it be) necessary for the sustenance of life, passes into the mass of the blood. Hence, air driven out from the lungs is no longer fit for respiration." The ærial something is the same nitro-ærial spirit that causes fire. Water contains air which can be expelled from it by heat. "To this I add, lastly, that the air interspersed in the particles of water is inhaled by fish for respiratory purposes." What good does the vital ærial spirit do in the blood? It produces animal heat. It is necessary for motion. This he proves. At first Mayow was inclined to think that the nitro-ærial particles were carried to their destination in the muscles by the blood; but on more mature consideration he concluded that it was more probable that the blood took them to the brain, and that the nerves conveyed them thence to the muscles. Dr. Crum Brown then quoted a bright

passage from *De Respiratione Fœtus in Utero et Ovo*, in which Mayow maintains that "the placenta should no longer be called a uterine liver, but rather a uterine lung."

HIS WRITINGS.

Dr. Brown admitted that in his quotations he had been separating Mayow's light from his darkness, and he then gave a specimen or two of his darkness. Dr. Crum Brown concluded thus: Mayow lived very near the beginning of really scientific investigation; he made ingenious experiments; he was an acute and intelligent observer, but he could have no conception of the enormous amount of experimental and observational work to be done before an approximation could be made to an answer to many of those questions which he discussed. It seems to me that a study of Mayow's works has a very considerable psychological interest, and I feel personally indebted to him for an introduction to the original, simple-minded, enthusiastic Dr. Beddoes.

THE DINNER.

The Orator was awarded a vote of thanks for his address, and then the Harveians betook themselves to dinner. The loyal and patriotic toasts were honoured; the immortal memory of Harvey was drunk in silence; the clergy, the President (given by that veteran Harveian Dr. John Smith), the guests, and the Secretary were in turn "toasted." Songs were given by Drs. John Smith, James Foulis, and Lockhart Gillespie; and the President gave his ever fresh story of "John McNeill." Before concluding with *Floreat Res Medica!* the President nominated Professor Thomas Annandale as his successor in the chair.

METROPOLITAN PROVIDENT MEDICAL ASSOCIATION.

A MEETING in support of the work of this Association was held at 7, Connaught Place, by permission of Mr. T. A. Denny and Lady Hope, on June 6th.

The CHAIRMAN (Mr. Denny) stated how he had, in company with the Secretary, paid a visit to one of the dispensaries of the Association, and he was gratified to see the amount of good work which was being done.

In proposing the first resolution, Sir WILLIAM BROADBENT said that it contained material for a long debate, for, in fact, a volume. He was not prepared to analyse the propositions which could be extracted from it, but he approved of it, and had great pleasure in moving its adoption. The satisfactory medical attendance on the working classes in London was a problem of extreme difficulty. The very poor were adequately provided for by the Poor-law administration, and there was a section of the population above them to whom it was right that the great hospitals should offer an open door both as in-patients and out-patients. It was when the question of the medical attendance on the working classes proper—the prosperous working class—was reached, that the difficulties began. One difficulty was that the moment a serious illness attacked the breadwinner he dropped from the well-provided into one of the lower categories. It was only by the principle of insurance against the evil day that the working classes, who were comfortable and prosperous while in health and strength could provide against illness, and that was done in two ways: by benefit clubs and by provident dispensaries. The system of the metropolitan provident dispensaries seemed to him best to meet the demands of those who were anxious to help themselves by providing against illness. He thought there was more of the relation of the ordinary family medical attendant in the doctors of the provident dispensaries than with the club doctors, who were very much overworked. The question of co-operation with hospitals was one to which he attached great importance. Many of those who held cards in connection with provident dispensaries were almost by that very fact debarred from the advantages of help from a general hospital. In all lines of practice, complicated cases in which the opinion of a surgeon or a physician of experience was necessary arose, and there was some difficulty in patients of provident dispensaries getting such advice. Instead of difficulty there ought, he thought, be increased facilities. They were people who had done their best to provide against ill-